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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,977	02/25/2004	Tsuyahiko Shimada	826.1931	8981

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WASHINGTON, DC 20005

EXAMINER
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PATEL, MANGLESH M

ART UNIT	PAPER NUMBER
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2178

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01/22/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/784,977	SHIMADA, TSUYAHIKO	
	<b>Examiner</b>	<b>Art Unit</b>	
	MANGLESH M. PATEL	2178	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. This **Non-Final** action is responsive to the RCE filed on 11/10/2008.
2. In the continuation Claims 1 & 3-11 remain pending. Claim 12 is canceled. Claims 1 & 5-11 are the independent claims.

**Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 & 3-11 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Kodaira (U.S. 6,868,183, filed on Mar 17, 2000) in view of Schneider (U.S. 5,229,589, filed on Nov 21, 1991).

**Regarding Independent claims 1, 5, 7, 9 and 11,** A document processing apparatus which displays a document image using image data of a document having one or more entry columns, comprising: An image data obtaining unit obtaining image data of a document; a density conversion unit classifying an area of a document image based upon the obtained image data into two types of areas, that is, a useful information area having useful information for document processing and a useless information area having no useful information, and specifying an image row to be thinned; A data processing unit processing the document image by increasing a ratio of the useful information area to an entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the classifying by said density conversion unit, recognizing an entry column on the document image, correcting position of the recognized entry column, based upon the specified image row to be thinned, and performing an operation to display on the document image the recognized entry column including presence/absence of a recognized mark, based upon the specified image row to be thinned; and A display control unit controlling displaying of the document image including the recognized entry column and the thinned image row on a display device; Wherein said density conversion unit considers at least one direction in counting a number of pixels assumed to be used in displaying

information about a document image represented by the image data, and classifies the useful information area from the useless information area based on a counting result comparison to a predetermined number.

Kodaira teaches an image processing apparatus that includes a scanner to read a document thus allowing conversion into image data. Kodaira then shows that the data is discriminated by a region discriminating unit. The unit determines the density difference of the binary image data thereby allowing the determination of key regions. Kodaira goes on to further state “The image type determining unit, of which is described below, determines feature quantities such as presence or absence of key regions such as dot and photographs...” (see column 5, lines 20-35). Therefore useful and useless area’s are discriminated thus allowing determination of the key regions. (see abstract, column 4, lines 50-67 & column 5, lines 1-60 & column 6, lines 10-55). Furthermore Kodaira suggests that the discriminating unit considers a direction in counting the number of pixels by disclosing a sub-scanning direction which counts and analyzes the max pixel density based on a threshold (see column 20, lines 40-67 & column 21, lines 1-15). **The discrimination is classifying as shown in fig 36 and discussed in column 23, lines 40-55, which teaches diving into groups.**

**Furthermore the thinning of the image rows is disclosed in column 6, lines 10-40 which describes dividing and classifying the image areas including its density differences including the degree of importance there suggesting the process of correcting a position of the recognized column based on the row to be thinned, because by thinning the useless area is eliminated thereby having a lower degree of importance.** Clearly such scanning is of pixel data. Kodaira fails to explicitly teach the increase in ratio which is magnification of the key region, instead he determines the region by sub-scanning process and pixel density analysis. However Schneider teaches that areas of interest are expanded in an area of interest pixel map (see abstract). Thus Schneider discloses that “The preprinted data within the areas of interest pixel map is subsequently expanded during image differencing to provide greater accuracy in scanning the completed questionnaire pages and detecting answer marks” (see column 2, lines 43-47). Thus Schneider suggests magnification of useless to useful information. Furthermore Schneider also suggests direction information in counting pixel data to adjust and align the locations of the area of interest against a predetermined value such as the original pixel map data (see column 4, lines 25-67). At the time of the invention it would have been obvious for the skilled artisan to modify Kodaira’s teachings to include an expandable pixel map. The motivation for doing so would have been to improve the accuracy of Kodaira’s discrimination unit, thereby improving the detection of key regions.

**Regarding Dependent claim 3**, with dependency of claim 1, Kodaira fails to explicitly teach the increase in ratio

which is magnification of the key region, instead he determines the region by sub-scanning process and pixel density analysis. However Schneider teaches wherein when said area discrimination unit discriminates the useful information area from the useless information area based on whether or not the number of pixels counted by considering one direction is equal to or smaller than a predetermined value, said data processing unit increases a ratio of the useful information area to the entire area by performing on at least the second partial image data a process of thinning lines having the number of pixels equal to or smaller than a predetermined value in the lines in the one direction (column 2, lines 43-47 & abstract, including the explanation provided in the Independent claim). At the time of the invention it would have been obvious for the skilled artisan to modify Kodaira's teachings to include an expandable pixel map. The motivation for doing so would have been to improve the accuracy of Kodaira's discrimination unit, thereby improving the detection of key regions.

**Regarding Dependent claim 4**, with dependency of claim 1, Kodaira fails to explicitly teach the increase in ratio which is magnification of the key region, instead he determines the region by sub-scanning process and pixel density analysis. However Schneider teaches wherein said data processing unit performs a process on at least one of the first and second partial image data so that a ratio of the useful information area to the entire area is increased by using different display magnifications of the useful information area and the useless information area (column 2, lines 43-47 & abstract, including the explanation provided in the Independent claim). At the time of the invention it would have been obvious for the skilled artisan to modify Kodaira's teachings to include an expandable pixel map. The motivation for doing so would have been to improve the accuracy of Kodaira's discrimination unit, thereby improving the detection of key regions.

**Regarding Independent claims 6, 8 and 10**, A document processing apparatus which processes a document having one or more entry columns, comprising: an image data obtaining unit obtaining image data of a document; a density conversion unit classifying an area of a document image based upon the obtained image data into at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information, and specifying an image row to be thinned; A data processing unit processing the document image by increasing a ratio of the useful information area to an entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the classifying by said area density conversion, recognizing an entry column entered on the document image indicated by

the image data, updating a position of the entry column according to the specified image row to be thinned, performing an operation to display on the document image the recognized entry column including presence/absence of a recognized mark, based upon the specified image row to be thinned, and correcting the presence/absence of the entry in the recognized entry column an instruction of a user; and a display control unit controlling displaying of the document image including the recognized entry column and the thinned image row on a display device. Wherein said density conversion unit considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and classifies the useful information area from the useless information area based on a counting result comparison to a predetermined number.

Kodaira teaches an image processing apparatus that includes a scanner to read a document thus allowing conversion into image data. Kodaira then shows that the data is discriminated by a region discriminating unit. The unit determines the density difference of the binary image data thereby allowing the determination of key regions. Kodaira goes on to further state “The image type determining unit, of which is described below, determines feature quantities such as presence or absence of key regions such as dot and photographs...” (see column 5, lines 20-35). Therefore useful and useless area’s are discriminated thus allowing determination of the key regions. (see abstract, column 4, lines 50-67 & column 5, lines 1-60 & column 6, lines 10-55). Furthermore Kodaira suggests that the discriminating unit considers a direction in counting the number of pixels by disclosing a sub-scanning direction which counts and analyzes the max pixel density based on a threshold (see column 20, lines 40-67 & column 21, lines 1-15). **The discrimination is classifying as shown in fig 36 and discussed in column 23, lines 40-55, which teaches diving into groups.**

**Furthermore the thinning of the image rows is disclosed in column 6, lines 10-40 which describes dividing and classifying the image areas including its density differences including the degree of importance there suggesting the process of correcting a position of the recognized column based on the row to be thinned, because by thinning the useless area is eliminated thereby having a lower degree of importance.** Clearly such scanning is of pixel data. Kodaira fails to explicitly teach the increase in ratio which is magnification of the key region, instead he determines the region by sub-scanning process and pixel density analysis. However Schneider teaches that areas of interest are expanded in an area of interest pixel map (see abstract). Thus Schneider discloses that “The preprinted data within the areas of interest pixel map is subsequently expanded during image differencing to provide greater accuracy in scanning the completed questionnaire pages and detecting answer marks” (see column 2, lines 43-47). Thus Schneider suggests magnification of useless to useful information. Furthermore the claimed document recognition unit recognizes a mark in a column based on the scanning process by expanding the area already disclosed by Schneider

Art Unit: 2178

(see column 2, lines 43-47). At the time of the invention it would have been obvious for the skilled artisan to modify Kodaira's teachings to include an expandable pixel map. The motivation for doing so would have been to improve the accuracy of Kodaira's discrimination unit, thereby improving the detection of key regions.

**It is noted that any citation [[s]] to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. [[See, MPEP 2123]]**

#### **Response to Arguments**

5. Applicant's arguments filed 11/10/2008 have been fully considered but are not persuasive.

Applicant Argues: ...Kodaira, as acknowledged by the office action, does not disclose the claimed "specifying an image row to be thinned." (pg 10, paragraph 4)

However, nothing has been cited or found that discloses expressly or implicitly to one skilled in the art to combine Schneider's expansion of data in the identified area of interest as part of image differentiation to detect answer marks, with Kodaira, and then further modify Schneider to provide the amended Independent claims. (pg 11, paragraph 1-3).

The Examiner Respectfully disagrees: As disclosed in applicant specification the process of specifying an image row to be thinned is essentially discarding the useless information area. Furthermore as disclosed in the spec the image is read into memory for zooming by using a scanning device (see spec pg 15, paragraph 3), this is already suggested by Kodaira in column 4, lines 50-67. Although he suggests the use of a scanner Kodaira fails to explicitly teach the increase in ratio which is magnification of the key region, instead he determines the region by sub-scanning process and pixel density analysis. However Schneider teaches that areas of interest are expanded in an area of interest pixel map (see abstract). However in regards to discarding the useless information area he discloses in column 6, lines 10-40 which describes dividing and classifying the image areas including its density differences including the degree of importance there suggesting the process of correcting a

position of the recognized column based on the row to be thinned, because by thinning the useless area is eliminated thereby having a lower degree of importance.

**It is not necessary that the references actually suggest, expressly or in so many words the changes or improvements that applicant has made. The test for combining references is what the references as a whole would have suggested to one of ordinary skill in the art.** In re Sheckler, 168 USPQ 716 (CCPA 1971); In re McLaughlin 170 USPQ 209 (CCPA 1971); In re Young 159 USPQ 725 (CCPA 1968).

**In response to applicant's argument, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).**

**Further more as to the reason to combine not being the same as applicant's.**

**If it is obvious to combine references for one reason it is obvious to combine references for all reasons.** In re Graf, 145 USPQ 197 (CCPA 1965); In re Finsterwalder 168 USPQ 530 (USPQ 1970); In re Kronig, 539 F.2d 1300, 190 USPQ 425 (CCPA 1976). In re Dillon, 892 F.2d 1544, 13 USPQ 1337 (1989); In re Dillon 919 F.2d 688, 16 USPQ 1897 Fed. Cir. 1990) (in bane).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manglesh M. Patel whose telephone number is (571) 272-5937. The examiner can normally be reached on M, W 6 am-3 pm T, TH 6 am-2pm, Fr 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen S. Hong can be reached on (571) 272-4124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2178

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manglesh M. Patel  
Patent Examiner (AU 2178)  
January 19, 2009

/Manglesh M Patel/  
Manglesh Patel  
Examiner, Art Unit 2178

	<p>/CESAR B PAULA/ Primary Examiner, Art Unit 2178</p>
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